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Harbor dredging is history

Project to be completed this week

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DUXBURY — Some 270,000 cubic yards of silt later, a dredge for the Army Corps of Engineers finished its work in Duxbury Harbor this week. The dredging began back on Aug. 15.

In all, five projects were accomplished in the six weeks since the Weeks Marine dredge arrived with its support equipment of two tugs and three scows and their crews. Work was done on a continuous basis, 24 hours a day, 7 days a week.

The primary objective of the \$1.8 million federal project was dredging the entrance to the harbor. Work started at buoy 12 and continued for an 8th of mile. A channel 100 feet wide and nine feet deep was cleared. In addition, 21 acres of anchorage was dredged to a depth of eight feet. Since the Army Corps of Engineers doesn't pay for disposal, that \$669,000 cost was split between the state and the town, with the state picking up \$501,000 of the bill under a Massachusetts Rivers and Harbors grant. Duxbury paid the remaining \$168,000.

Because the material removed by dredging is fine and silty, it can't be used on the beach, according to harbormaster Don Beers. "It is so fine, when it dries out, it tends to blow away," he said.

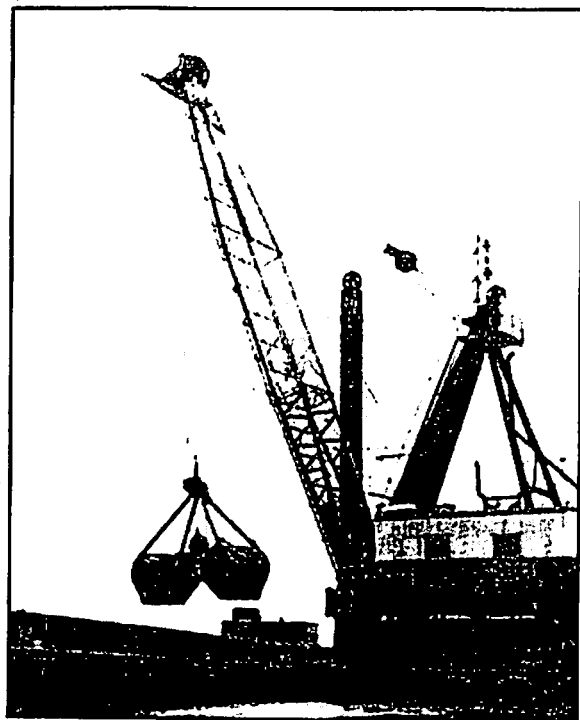
In an unusual example of cooperation between federal, state, local and private entities, four other projects were completed taking advantage of the equipment on hand. It was a two-year effort to coordinate these projects, which included dredging for pier and floats at:

- town pier, 5,000 cubic yards removed.
- Bayside Marine, 3,000 cubic yards.
- Duxbury Yacht Club, 8,000 cubic yards.
- Battelle Labs, 3,000 cubic yards.

The town and each facility paid for its own project. Dredging has not been done in Duxbury Harbor for 20 years, since 1976-77. Normally, it is done every 10 years, but it was delayed due to a lack of suitable disposal sites. The permitting process mandated that alternative sites be considered before open water disposal would be approved, but no alternative sites could be found. Rigorous testing of the silt had to be completed to insure it was free of pollution.

Dredging goes high tech

Army Corps Engineers did a complete survey of the harbor before the project was started and calculated how much material was to be removed. Weeks Marine then did daily electronic depth soundings with a survey boat circling the dredge, relaying its data to the dredge where computerized printouts were done to determine exactly what had been removed. Work can proceed day and night, since dredgers work by "feel" as a result of these electronic soundings and computer analysis. The survey boat and the dredge position themselves by using a differential ground position satellite (DPGS)



Staff photo/Grey Perry

Big dig — The Army Corps of Engineers dredge finishes up its 6-week project in Duxbury Harbor this week.

system, which is restricted for use by the military and certain civilian applications, such as this dredging work for the Corps of Engineers. The satellite system guarantees accuracy to within less than one meter, but in actuality, it is even more accurate than that.

The big dredge can fill a scow in three hours, faster than the tug and scow can make the 10 hour round trip to the disposal site, eight miles west of Wellfleet. The tugs also have the satellite systems on board, which print out a report every 15 minutes during its trip to the dumping site to prove they made the complete trip and dropped the silt in the proper place. There is also a Corps of Engineers representative on each scow to monitor concerns with whales and to make sure endangered species aren't adversely affected.

"The hurricanes and northeaster caused boat-owners to haul their boats early," Beers said, "this helped make way for the dredge. I was also pleased with the environmental covers on the dredge bucket which minimized the effects of the dredging and reduced silt in the harbor. There is a \$8 dollar return of commerce for every \$1 spent over the life of this project. So, while it is maintenance of our infrastructure mandated by Congress, it has a great economic impact on our town as well. We are very pleased with the way the project went."